

Challenges and Barriers Experienced by Public Health Graduated in Conducting Research, in Benghazi University

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ABSTRACT

Background: Conducting scientific research is an essential skill for public health professionals. However, many graduates face various obstacles that limit their ability to engage effectively in research activities. Understanding these challenges is crucial to improving research training and capacity among graduates.

Objective: This study aimed to identify the main challenges and barriers experienced by Public Health graduates of Benghazi University in conducting research.

Methods: A descriptive cross-sectional study was conducted among Public Health graduates of Benghazi University. Data were collected using a structured Google Form questionnaire distributed electronically through email and social media platforms. The questionnaire included sections on demographic information, research experience, challenges faced, and suggestions for improvement. Data were analyzed using descriptive statistics and correlation analysis with SPSS software.

Results: A total of 118 graduates participated in the study. The most commonly reported barriers included lack of skills in statistical procedure (70.5%), and lack of digital library resource (70%), limit data base access (69%) in adequate skills in doing research (68%) and unwilling of participants (69%). However, the other barriers to conduct research like lack of language, time constrain, difficulty in writing appeared to be least problem.

Conclusion: Public Health graduates at Benghazi University face multiple challenges that hinder their research engagement, primarily related to training, resources, providing electronic library, and. Enhancing research capacity through structured training programs, training on statistical analysis, adequate supervision, and institutional support, is recommended to improve graduates' research performance and confidence.

Keywords: Public Health; Research Barriers; Graduates; Benghazi University; Challenges; Research Capacity; Cross-sectional Study; Conducting Scientific Research; Research Experience; Research Skills.

1. Introduction

Research is an essential activity across all academic levels and disciplines. Numerous studies have been conducted in diverse fields, reflecting the broad application and necessity of research in understanding and addressing complex issues. According to Rind [1], the term research can be viewed as a hyphenated compound—re-search—implying a repeated or renewed search for knowledge or interpretation. It involves a systematic process aimed at solving problems, generating insights, and pushing the boundaries of existing knowledge. Kerlinger et al. [2] defines research as a systematic investigation of hypothetical propositions concerning the relationships among natural phenomena. Effective research must follow standardized procedures to ensure the reliability and validity of its findings. Despite its fundamental role in academia and innovation, research is sometimes viewed negatively, often due to misconceptions or lack of understanding of its true purpose. Nevertheless, the term (research) resonates daily across academic and professional communities, underscoring its central role in advancing human knowledge [3].

The most common problems and challenges faced by research students during research in academic and scientific communities is research topic selection which should carefully select. Research study starts by selecting new research questions. Research problem should be original, can be studied, and must carry meaning, but it will lead to impenetrability because it is not easy to find a new problem and a significant population [4]. Choosing a new

research topic can be a challenging task, particularly for researchers who may be unsure of how to select it or what criteria to use in making their choice. The topic selection process typically begins with identifying a general area of interest, from which a specific problem is then. However, due to limited knowledge or experience in defining and refining research problems, many researchers spend considerable time exploring topics that may ultimately lack relevance, originality, or feasibility. This often leads to the selection of weak or unproductive research topics, which can reduce the overall quality and impact of the research [5].

Other challenges faced by students are supervisor related difficulties, supervisors are misleading/misguiding investigators in the process of research because they do not have much training. Supervisors are found with ambiguous concepts. They cannot supervise in a real way. It will not be wrong to think that, in most cases, supervisors and researchers have the same level of understanding of research techniques [5]. In addition, many research students found difficulties when their original supervisors become unavailable or too busy due to factors such as illness, study leave, personal circumstances, promotion, or retirement. The supervisor-student relationship plays in the research process; this association cannot be left to chance. Effective supervision is crucial for academic guidance, research development, and emotional support throughout the research journey. Therefore, it must be carefully managed to ensure clear communication, and understanding between both parties. Institutions should also have structured systems in place to address supervision gaps and ensure students receive consistent support [6]. Unavailability of appropriate literature is common challenges faced by researchers, literature provides an overview of the major theories, concepts, and ideas established by previous researchers on a particular topic. Engaging with existing literature enables students to develop an appropriate academic vocabulary, refine their writing style, and communicate ideas effectively. To achieve this, students must be understanding of the key concepts, frameworks, and debates within their specific field of study. Such familiarity not only enhances scholarly communication but also allows for critical engagement with existing knowledge, thereby laying a strong foundation for original research [7]. Researchers cannot obtain proper review as appropriate literature is unavailable or there is no access to the appropriate related literature and without going through the literature a research work cannot enjoy access to success. This is a major problem the researchers faced during research work [8].

Research study showed that a shortage of funding in conducting research is a major problem for students as cited in previous studies. This may involve the fact that, in some countries, funding for research on expensive materials and equipment has been limited researches in important field need more scientific studies, therefore the lack of research funding for research projects as the main problem [9]. Another problem faced researchers is difficulties of data collection were faced during the data collection period, in most of the surveys and some of which were similar among countries. During the study researcher can't rely on one or two of the data sources rather they have to collect from different sources, so there is no easy access to data sources. Address the difficulties in a survey; the researchers were given suggestions to create a comfortable environment for participants during data collection [9]. Difficulties of time management time is need management skills deal with consciousness, organization, and commitment. One should comprehend and collect all the things one is doing as those are important things that can be done in due time. It also needs the commitment to maintain a schedule, and not attracted to other interesting things happening around [10]. So, research becomes difficult when researcher faced several difficulties during their research work. There is

an extreme need to sort out the above problems and issues so that researchers could focus on research work rather than solving these inconveniences. The purpose of this study was to explore the problems and challenges faced by the researchers. Research difficulties keep researchers at problem throughout research studies, therefore an urgent need to address the problems and issues to enable researchers to focus on their scientific work.

1.1. Study Objectives

- 1) To determine the barriers of public health graduates toward conducted research.
- 2) To identify the demographic distribution of the participants.
- 3) To describe attitudes public health Graduates toward conducted research.
- 4) To understand faculty and Supervisory Support Factors Influencing Graduates Research.
- 5) To explore research Experience and exposure.

2. Materials and Methods

2.1. Study Design

This study was a descriptive cross-sectional design to identify the challenges and barriers faced by Public Health graduates of Benghazi University.

2.2. Study Population

The population consisted of Public Health graduates from Benghazi University. Graduates from the 2007 to 2024 were invited to participate in this study.

2.3. Sampling and Sample Size

A convenience sampling technique was used. The study included all graduates who voluntarily responded to the questionnaire. The total number of participants was 118.

2.4. Data Collection Tool

Data were collected using a structured questionnaire developed in Google Forms. The questionnaire included six main sections:

1. Demographic characteristics (e.g., age, gender, marital status, year of graduation).
2. Barriers experienced by medical students in conducting research (lack of time, lack of knowledge, inadequate skills in doing research).
3. Methodology Related Problems Faced by students (e.g., problem in tool/questionnaire selection, Problems with accessing resources).
4. Attitudes of the student toward research (e.g. do have an interest in doing research, do you plan to continue working with research after graduation).
5. Supervisor Related Problems Faced by students (selection of topic, Proper guidance from supervisor).

6. Institution related problems faced by students (e.g. lack of digital library resources).

2.5. Data Collection Procedure

The Google Form link was shared electronically through email, and social media platforms. Participation was voluntary, and electronic consent was obtained before answering the questions.

2.6. Data Analysis

Responses from Google Forms were downloaded into Microsoft Excel/SPSS (version 21 for analysis). Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data.

2.7. Ethical Considerations

Ethical approval for the study was obtained from the Faculty of Public Health, Benghazi University. Participants were informed about the study objectives, and their consent was obtained before data collection. Data confidentiality and anonymity were strictly maintained.

3. Results

Table 1. Demographic characteristics of Graduates of the Faculty of Public Health (n = 112)

Demographic characteristics (n = 112)	
Variables	Frequency (%)
Gender	
Male	14 (12.5%)
Female	98 (87.5%)
Nationality	
Libyan	99 (88.4%)
Egyptian	3 (2.7%)
Palestinian	1 (0.9%)
Not answered	9 (8.0%)
Department	
Nutrition	29 (25.9%)
Health services administration	40 (35.7%)
Environmental health	20 (17.9%)
Health informatics	8 (7.1%)
Educational Health	8 (7.1%)
Not answered	7 (6.3%)
Level of qualification	
Ph.D.	3 (2.6%)
Bachelors	94 (83.9%)
Master	11 (9.8%)
Not answered	4 (3.6%)

Table 1 highlights the participants' distribution based on Demographic characteristics of the participants. The demographic data reveal that 87.5% of participants were female, while only 12.5% were male. With 88.4% of the total, Libyan students made up the majority of the sample. Palestinians were the smallest group at 0.9%, followed by Egyptians at 2.7%. In terms of departmental distribution, the department with the highest representation was Health Services Administration (35.7%), followed by Nutrition (25.9%) and Environmental Health (17.9%). In contrast, the departments with the lowest representation were Health Informatics (7.1%) and Educational Health (7.1%). Bachelor's degree made up the largest group in terms of educational attainment (83.9%), followed by master's (9.8%) and PhD (2.6%).

Table 2. Barriers of public health graduates toward conducted research

Barriers of public health students toward conducted research (n = 112)			
Statement	Yes	No	Not inferred
	Frequency (%)	Frequency (%)	Frequency (%)
Lack of knowledge	57 (50.9%)	55 (49.1%)	
Lack of time	64 (57.1%)	46 (41.1%)	2 (1.8%)
Inadequate skills in doing research	76 (67.9%)	34 (30.4%)	2 (1.8%)
Inadequate skills in statistic method	79 (70.5%)	30 (26.7%)	3 (2.7 %)
Lack of finance	64 (57.1%)	45 (40.2%)	3 (2.7 %)
Difficulty of choose topic	47 (42.0%)	63 (56.3%)	2 (1.8%)
Difficulty in writing proposal	50 (44.6%)	61 (54.5%)	1 (0.9%)
Difficulty in collecting data	56 (50.0%)	55 (49.1%)	1 (0.9%)
Difficulty in analysis	52 (46.4%)	59 (52.6%)	1 (0.9%)
Difficulty in writing report	50 (44.6%)	61 (54.5%)	1 (0.9%)
Problem in writing and reporting the results	53 (47.3%)	58 (51.7%)	1 (0.9%)
Problem in tool/questionnaire selection	49 (43.8%)	62 (55.4%)	1 (0.9%)
Problems with accessing resources	63 (56.3%)	47 (42.0%)	2 (1.8%)
Language problems with foreign resources/articles	50 (44.6%)	59 (52.6%)	3 (2.7%)
Problems for getting permission from institute	63 (56.3%)	47 (42.0%)	2 (1.8%)
Problem of unwillingness of participants	77 (68.8%)	34 (30.4%)	1 (0.9%)
Lack of discussion with supervisor	45 (40.2%)	63 (56.3%)	4 (3.6%)
Lack of digital library resources	78 (69.6%)	28 (25.0%)	6 (5.4%)
Insufficient content and lack of direction	70 (62.5%)	37 (33.0%)	5 (4.5%)
Limit database access	77 (68.8%)	32 (28.5%)	3 (2.7 %)
Getting permission from Ethical committee	65 (50.0%)	45 (40.2%)	2 (1.8%)
Delayed/ineffective feedback on the marked assignments	57 (50.9%)	50 (44.6%)	5 (4.5%)
Formats and sample of thesis writing	77 (68.8%)	30 (26.8%)	5 (4.5%)

Table 2 outlines the responses regarding barriers of public health students toward conducted research. Inadequate skills in statistic method and Lack of digital library resources were the top barriers among the others barriers. Some barriers were relatively less frequent, such as topic selection difficulty (47%) and lack of discussion with supervisors (45%).

Table 3. Attitudes public health Graduates toward conducted research (n = 112)

Attitudes public health students toward conducted research (n = 112)			
Statement	Yes	No	Not inferred
	Frequency (%)	Frequency (%)	Frequency (%)
Lack of interest	40 (35.7%)	71 (63.4%)	1 (0.9%)
Do have an interest in doing research?	94 (83.9%)	15 (13.4%)	3 (2.7%)
Do you plan to continue working with research after graduation?	85 (75.9%)	25 (22.3%)	2 (1.8%)
Do you believe in the importance of medical researches?	105 (93.8%)	4 (3.6%)	3 (2.7%)

Table 3 presents the summary of the findings related to attitudes public health graduated toward conducted research which 83.9% expressed an interest in conducting research, and 75.9% reported plans to continue engaging in research after graduation. On the other hand, only 35.7% of students reported a lack of interest. The results show that medical students generally hold highly positive attitudes toward research.

Table 4. Faculty and Supervisory Support Factors Influencing Graduates Research (n = 112)

Faculty and Supervisory Support Factors Influencing Student Research (n = 112)			
Statement	Yes	No	Not inferred
	Frequency (%)	Frequency (%)	Frequency (%)
Motivation from faculty in your college to conduct research	68 (60.7%)	43 (38.4%)	1 (0.9%)
Provided the information about sources of literature	72 (64.3%)	34 (30.4%)	6 (5.4%)
Proper guidance from supervisor	73 (65.2%)	35 (31.3%)	4 (3.6%)
Assisted the student in data analysis	65 (58.0%)	42 (37.5%)	5 (4.5%)
Assisted the student in report writing	65 (58.0%)	42 (37.5%)	5 (4.5%)
Help in selection of topic	81 (72.3%)	26 (23.2%)	5 (4.5%)
Give direction to the students properly	77 (68.8%)	29 (25.9%)	6 (5.4%)

As shown in Table 4, the Faculty and Supervisory Support Factors Influencing Graduates' Research element was the highest percentage (Help in selection of topic) item, which was 72%. Thereafter, the next lowest percentage was for items that assisted the student in report writing.

Table 5. Research Experience and Exposure (n = 112)

Research Experience and Exposure (n = 112)			
Statement	Yes	No	Not inferred
	Frequency (%)	Frequency (%)	Frequency (%)
Have you ever attended a course in research	53 (47.3%)	56 (50%)	3 (2.7%)
Did you publish it?	36 (32.1%)	73 (65.2%)	3 (2.7%)
Did get awarded for your research?	45 (40.2%)	64 (57.1%)	3 (2.7%)
Do you have an idea which you think it's good for research?	86 (76.8%)	23 (20.5%)	3 (2.7%)

Table 5 highlights a noticeable trend in Research Experience and Exposure public health graduates toward conduct research. According to a vast majority (76.8%), they have solid research ideas. Nearly half of the students lacked formal training, as just 47.3% reported taking a research course. Furthermore, 40.2% of respondents said they have won prizes for their research.

4. Discussions

In summary, the lack of skills in statistical procedures was the most barriers that graduated from public health faculty faced in graduated project. Since scientific research requires students to collect and analyze data to reach results, this requires an accurate understanding of statistical processes.

Selecting a statistical test to employ is one of the most crucial choices a researcher will make throughout a project. The researcher must determine whether the research focus is purely descriptive or inferential in nature [11].

Numerous studies have found that medical students typically struggle with statistics, which hinders their ability to complete their graduated projects. This view is supported by a study conducted in Saudi Arabia by Alsaleem (2021), which found that a lack of statistical knowledge was the primary obstacle to research among Saudi medical students [12].

Furthermore, the University of Benghazi noted challenges to scientific research. Over 50% of the participants concurred that there was insufficient instruction on research methods. In contrast, in a study conducted in 2022 in Libya among medical students, the top barriers were lack of awareness and lack of self-interest [13].

Another important finding was that lack of digital library resources was the second obstacle to conducting the research among medical students. Enhancing undergraduate medical students' research skills requires having access to digital library resources. Digital libraries enhance the quality and legitimacy of student research projects by providing access to full-text journals and reference management tools [14]. These results agree with the findings of other studies, in which the second barrier in the Sudan study conducted in 2023 on 1123 medical students after the lack of funding barrier was the lack of digital library resources [15].

The findings suggest that graduated public health faculty hold predominantly positive attitudes toward research, both in terms of current interest and future commitment.

Numerous of recent studies emphasis that medical students have become more awareness by the research [13,15].

Recently, Artificial Intelligence uses in medical, epidemic disease as Corona viruses and environmental pollution effects on health were the most issue take concern of the Future physicians in training [16,17].

Faculty and Supervisory Support Factors Influencing Student Research the top choice from point view of the participated was that, Help in selection of topic. Early on, when choosing a topic, the students received direction and encouragement from the faculty and supervisor. Moreover, the support in data analysis and writing were poor.

Research Experience and Exposure Among public health graduated, this point was a large majority (76.8%) said they have solid ideas for research, showing that there is a lot of potential that may be unlocked with improved training and supervision.

Indicating that students strongly believe that research is important for their professional advancement, even though it can be stressful and difficult [18,19,20].

Another study mention that, although students recognize the importance of research, this meta-analysis found that many are frustrated by insufficient mentorship, a lack of time, and ambiguous institutional frameworks for student research [21].

5. Conclusions

As the evidence suggests, the most significant barrier faced by the public health graduate was insufficient statistical skills. In addition, the participants' impressions of the study were positive toward scientific research. Moreover, supervisors should prepare and assist the student in writing the report. However, the qualitative data was more suitable for this kind of study to investigate the barriers in conducting the research in more depth. But for the limited time and resources, the cross-sectional study was selected to collect the quantitative data.

6. Future Recommendations

- 1-Emphasis on building and strengthening statistical skills from the early years of university education due to their importance in conducting scientific research.
- 2-The importance of scientific research in confronting various health crises must be made clear, as it is one of the pillars of scientific development.
- 3-Focusing on and establishing electronic libraries to help those interested in conducting research and providing them with the latest research.
- 4-To encourage research, communicate with decision-makers and provide them with the results of graduation research.
- 5-Developing research supervision methods by giving faculty members workshops.

7. Significance of the Study

This study is important because it highlights the main challenges and barriers that prevent Public Health graduates from effectively conducting research at Benghazi University. Identifying these barriers provides valuable insights for educators, policymakers, and university administrators to improve research training and support systems.

The findings of this study can also contribute to the national effort to enhance public health research, improve the quality of evidence-based practice, and encourage more graduates to participate in scientific research and publication.

Declarations

Source of Funding

This study received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Competing Interests Statement

The authors declare that they have no conflict of interest.

Consent for publication

The authors declare that they consented to the publication of this study.

Authors' contributions

Both the authors took part in literature review, analysis, and manuscript writing equally.

Availability of data and materials

Supplementary information is available from the authors upon reasonable request.

Institutional Review Board Statement

Not applicable for this study.

Ethical Approval

Ethical approval for the study was obtained from the Faculty of Public Health, Benghazi University.

Informed Consent

Participants were informed about the study objectives, and their consent was obtained before data collection.

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